originated in the Devonian and flourished in the lower and upper Culm in Basse-Loire and during the Westphalian in the north.—A. C. NOÉ.

Availability of potassium.—BREAZEALE and BRIGGS[34] find that the potassium of orthoclase solutions is not available for wheat seedlings, owing, it is concluded, to the potassium being present with other elements in a complex solute molecule, which does not yield potassium ions. This conclusion is supported by the fact that oxidation with acids makes the potassium available. From the experiments recorded in the paper, the general conclusions are drawn that the concentration of a plant food in the soil solution is not necessarily a measure of its availability for the plant, and that applying finely ground orthoclase to a soil does not immediately increase the available potash content of the soil. While the conclusions are probably justified, it must not be concluded from experiments of this kind that plants cannot get the needed potassium from finely ground orthoclase applied to the soil or from orthoclase found naturally in the soil. The nature of the root system and the conditions of its functioning are probably quite different in the solution than in the soil.—S. V. EATON.

Indian Gondwana plants.—A great majority of the specimens described in this volume were figured by FEISTMANTEL in the *Palaeontologia Indica*. A revision[35] of the material brought to light some new features, and in several instances has revealed inaccuracies in the illustrations accompanying FEISTMANTEL's descriptions. Numerous text illustrations and seven plates in folio with excellent drawings and photographs enable the reader to judge SEWARD's revision of Gondwana plants. SEWARD was ably assisted by SAHNI, who promises to become an authority on Indian paleobotany.

The Gondwana system is an extremely interesting geologic period of high paleobotanic importance. It corresponded to the Permo-Carboniferous of Europe, and is distinguished by paleozoic glaciation features. The Gondwana flora is characterized by a wealth in gymnosperms, especially Cycadophyta. The present volume describes eight species of Bennettitales, and seven species of Nilssoniales; also numerous Cordaitales, Ginkgoales, and Coniferales are represented, but the pteridophytes are rather scarce. No *Glossopteris* is mentioned.—A. C. NOÉ.

New method of vegetative multiplication.—DASTUR and SAXTON[36] have described a method of vegetative multiplication in a perennial species of

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[34] BREAZEALE, J. F., and BRIGGS, L. J., Concentration of potassium in orthoclase solutions not a measure of its availability to wheat seedlings. Jour. Agric. Res. **20**:615–621. 1921.

[35] SEWARD, A. C., and SAHNI, B., Indian Gondwana plants: A revision of Palaeontologia Indica. New Series **7**:1–42. *pls. 1–7*. 1920.

[36] DASTUR, R. H., and SAXTON, W. T., A new method of vegetative multiplication in *Crotalaria burhia*. New Phytol. **20**:228–233. *figs. 4*. 1921.

Crotalaria (*C. burhria*) which differs from anything previously described. The plant has a very long tap root, and when about a year old the axis becomes ribbed, the ribs beginning at the transition region between stem and root and extending in both directions. The ribbing is associated with the development of an accessory bundle system, and the gradual separation of branches which become established as separate plants. In this way, "when the main axis perishes, a circle of branches separated to below the ground level is already established." It was also observed that although the plant flowers during most of the year, it seems seldom to develop seeds.—J. M. C.

Sexual evolution.—SCHAFFNER[37] has presented his conception of the evolutionary stages of sexual expression, defining what may be called twenty-three steps in evolutionary progress, each one illustrated by examples. He is convinced that sex "cannot be associated primarily with special chromosomes." The general conclusion is reached that "the specific structures and functions developed in the ontogeny of an organism appear to be conditioned on the interaction of four fundamental influences: (1) hereditary factors, (2) influence of environment, (3) progression of senility, and (4) presence of sexual states in the living substance."—J. M. C.

Mesozoic flora.—BERRY'S[38] fourteenth contribution to the Mesozoic flora of the Atlantic coastal plain deals with the floras of the Eutaw and Ripley formations. The article comprises an advance paper of the fuller material to be described and illustrated in a professional paper of the United States Survey (no. 112) which has meanwhile appeared. The larger publication includes the Tuscaloosa formation besides the two groups mentioned.—A. C. NOÉ.

North American flora.—Part I of volume 6 begins the presentation of Phyllostictales by SEAVER. This ordinal name is used in place of Sphaeropsidales, because the generic name *Sphaeropsis* "goes out of the order," and the ordinal name becomes untenable. In this first part the genus *Phyllosticta* is presented, 300 species being recognized, only three of which are described as new.—J. M. C.

Fossil woods of Queensland.—SAHNI[39] describes and gives microphotographs of a number of fossil woods which range from fern stems through gymnosperms to angiosperms. The paper is a valuable contribution to the study of Mesozoic woods.—A. C. NOÉ.

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[37] SCHAFFNER, J. H., Progression of sexual evolution in the plant kingdom. Ohio Jour. Sci. **22**:101–113. 1922.

[38] BERRY, E. W., Contributions to the Mesozoic flora of the Atlantic coastal plain. XIV. Tennessee. Bull. Torr. Bot. Club **48**:55–72. 1921.

[39] SAHNI, BIRBAL, Petrified plant remains from the Queensland Mesozoic and Tertiary formations. Queensland Geol. Survey. Publ. no. 267. pp. 48. *pls. 5. figs 10.* 1920.